Most of the dwellings in Bang Chan flanked the canals that stretched away from the temple area. All houses were in sight of one or more other houses, if not standing side by side. Here and there they formed small hamlets where kinsmen tended to live in proximity. Around the houses were kitchen gardens and threshing floors, and behind them, the fields. Bananas grew abundantly; pineapples, mangoes, and other fruits occasionally. The canals were full of water-vegetables, cultivated or wild, while fish were plentiful. Water sources were the rain, kept in large jars; artificial ponds dug near the houses and fed from ground water; and the canals. No wells existed. The large tile roofs of the temple collected a good deal of rain-water which was available to anyone during the hot season when all water ran low.

General Nutritional Level

The population was physically well-formed with few physical deformities evident. There was little obesity or emaciation. The daily diet (cf. Hauck, et al.:passim) consisted of large quantities of rice, with small amounts of fish, meat, vegetables, fruits, spices, and eggs. Food at the not-infrequent festivals was rich in meat, eggs, and sugar. No milk was available except canned imports, and little was used. "Nevertheless, though caloric deficiency ('hollow hunger') was not prominent, over half of a sample of the population inspected medically had one or more signs of malnutrition. Even in a group chosen for research reasons for apparently good nutrition, about one in four had some such sign and in another group, selected for evidence of poor nutrition, two out of three persons had such."[2] The nutritional level in Bang Chan did not always correlate absolutely with economic level, for nutritionally one of the poorest families was found to be one of the best fed because the father did so much fishing and collecting of green canal vegetables. The change-over, some decades ago, from home pounding of rice to steam milling by most families had probably been a major factor in increasing nutritional deficiencies throughout the community.

2. Dr. H.M. Hauck, personal communication, 1959.

262 expenditures by food groups is shown for the 11 families that
511 participated in the dietary study.

Consumption of canned foods was negligible. Some canned fish and fruits were on sale at stores in the village, in 1952-54, but were seldom seen in homes.

262 Sweetened condensed milk, which was served in coffee
272 sold at the stores, was occasionally bought for the children.
854 On one occasion, a woman was seen buying milk diluted with
855 hot water as a beverage. Among 526 records of food eaten by school children during 24 hour periods, milk appeared twice only, once with coffee. Dried milk, for infant feeding, was used occasionally. During 1952-54, several instances were noted in which dried milk, mixed with water, was used to feed an infant while the mother was at work in the field or engaged in vending, but we encountered one case only of an infant who was not breast fed. This was an infant whose mother died when he was five days old, and who was reared by grandparents.

262 Relatively few items of food were available at the vil-
443 lage stores. In the inventory of the largest of the three
[27] stores in the village in 1948-49 (Sharp et al., 1953, pp. 211-212) the following items of food were listed: big dried chilies, shrimp paste, onion, garlic, fish sauce (fishsoy), salted fish, fresh chilies, limes, coconut, coconut oil[1], brown (palm)sugar, tea, coffee, condensed milk, orangeade and lemonade (carbonated), sweets, liquor, ingredients (including a lime paste) used together in betel chewing.[2]

New stock received in December by a local vender who kept a few items for sale at her house included mature green beans, black beans, peanuts, sweet potatoes, salted turnip, pickled garlic and tomato sauce.

272 Larger stores served as informal men's clubs where tea,
443 coffee with condensed milk, and carbonated beverages were
575 sold primarily for consumption on the premises. The proprietor of a new store, built in December 1952, sold no liquor.

273 We have no estimate of the amount of liquor sold in Bang
[443] Chan, although for those who drank it, its caloric value might be of significance.[3] About 9% of the householders interviewed

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[354] 1. Listed by Sharp et al. with non-food items, as much of it was burned in lamps.

2. Included here as food since some calcium may be obtained from this source.

3. One observer estimated the intake of certain village men who drank regularly as at least 2 oz. of rice liquor (28-35% alcohol) per day, representing about 100 calories. The estimated intake of women who drank regularly was about 1 oz. per day.

might provide clues to ways in which the diet may be improved. Most of these items were included in lists given by Sharp et al. (1953)[1]. To those lists should be added the following items from our food records:

Green leafy and yellow vegetables: Leaves of bergamot, chili, morinda, onion, potato, pumpkin, (2)sa-(5)noo, and of the following trees: (2)ma-(1)dan, (4)khlyb[2] and West Indian pea tree; (2)kha-(1)cauaun flowers.

Other vegetables: flowers of leek and pumpkin, and Chinese or black truffle (water chestnut).

Fruits: Thai nutmeg and tomato.

Fresh foods other than fish: buffalo, duck, cobra, turtle and field rat.

At the end of Chart 2, sources of water for drinking and food preparation have been included, not only because water is properly considered a nutrient, but also because the water used in preparation of food may affect the wholesomeness of foods eaten raw or with little cooking.

Untreated water was the customary beverage with meals. Ordinarily no distinction was made in source of drinking water for children and adults although boiled water was given to mothers and infants to drink during the post partum rest period (Hauck, 1956). Occasionally a sick person would be given boiled water to drink; for example one man who said he was "a little sick" and "not working" was observed to drink hot boiled water from a thermos bottle. In 1955, Ralis[3] found that tea was seldom or never drunk by nearly 3/4 of the respondents. Less than 7% drank it frequently. Thus in Bang Chan no custom had grown up which would afford the general population with a measure of protection against infection from

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1. See Sharp et al., 1953, pp. 193-196 for a list of 32 fish known to be found in Bang Chan; pp. 293-294 for 34 fruits grown in Bang Chan, and p. 295 for 11 fruits known to be used but not grown there; pp. 296-298 for 41 vegetables grown in Bang Chan, and pp. 299-300 for 24 other vegetables used.

2. (4)Khlyb was the term used in Bang Chan for an unidentified tree of the family Leguminosae. Its sweet tasting leaves were washed in boiling water to get rid of a bad odor, then were eaten with (4)nam (4)phrig, a chili sauce.

3. Golden and Ralis, 1957, p. 57. The answers to: "Do you drink tea frequently, occasionally, seldom or never?" were: often, 22; occasionally, 68; seldom, 158; never, 85.

252 usually covered. A common practice was to remove the cover and stir the rice once, toward the end of the cooking process. When the rice was almost done, surplus cooking water was drained off, and often after a lapse of time, the covered pot was put back onto the fire which had been allowed to die down, for about 6 minutes.[1] Thus the final cooking was essentially a process of steaming. Total cooking time varied from a little over 20 minutes to three-quarters of an hour, depending primarily on the amount of rice cooked. The finished product was moist enough to form a ball when pressed between the fingers. Left-over rice, if not eaten cold as a snack, was reheated by [231] being added to the hot rice at the next meal. Rice water was commonly given to pets if there were any. In 4 families which [272] participated in the dietary study, rice water was given to in- [853] fants, one 11-year old boy served himself liberally to it, and one adult man was observed to drink rice water before meals.

The many recipes for preparation of "with-rice" dishes may be grouped into two categories, hot and mild. Hot dishes always contain chili and varieties of spices which are hot tasting. One type of hot dish is curry which may be designated as either "hot" or "sour". Thai curry consists chiefly of fish or any available kind of meat, with or without vegetables. To make curry, shrimp paste, chili and spices were pounded thoroughly and then mixed with the meat and condiments and frequently with coconut milk. All were boiled together. Vegetables, if used, were added when the mixture was nearly done. Both vegetables and meat were cut into small pieces and washed before cooking. With the exception of dried chilies and tamarind, foods were not ordinarily left to soak in water. Sour curry differs from hot curry in that it contains less chili and spices and has a mixture of tamarind ((4)ma-(1)dan might be substituted) crushed with water added to it.

The other type of hot dish is (4)nam (3)phrig or chili sauce. It is made of shrimp paste, chili, garlic and other spices ground together in the mortar and then mixed with lime juice, sugar and salt or fishsoy. (4)Nam (3)phrig was always served with either raw or cooked vegetables. One informant commented that (4)nam (3)phrig was the everyday food among the villagers.

Preparation of mild dishes varied. These included panned vegetables, meat or eggs cooked with small amount of fat and a variety of spices and condiments including black pepper but not chili. Fish were sometimes roasted or boiled. Vegetables might be eaten either raw or cooked in coconut milk without seasoning. If vegetables were simply boiled in water,

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1. Median times for a series. In 15 instances cooking time before draining ranged from 18 to 38 minutes and rice was steamed from 2 to 12 minutes after draining.

The observer often had
126 opportunity to make notes on foods eaten by various family
262 members. Two examples of these are included in Appendix A, p. 97.

Snacks

262 We have noted that various family members ate the morn-
264 ing meal, in particular, at different times, and that children
855 especially might eat leftover food between meals. Most Bang
Chan school children[1] ate snacks, which were usually different
443 from foods eaten at a regular meal. Doubtless most of them were purchased from one of the venders who were to be seen on the school grounds daily. Fruits and "desserts" were most commonly eaten, although a variety of other foods, not a part of the usual Thai meal, were also listed. Sweets were listed about 450 times on the 539 records obtained. Many of them had a base of rice, rice flour or glutinous rice with sugar, and included coconut, banana or other fruit. Some were made with legumes, and a few contained egg. Fried bananas, fried sweet potato slices, bananas or beans cooked in syrup, and bananas cooked in sweetened coconut milk were also listed. A few items such as ices, flavored syrup poured over shaved ice, and candies, had little nutrient value other than caloric content.

272 A glass of milk, and milk with coffee, were each listed
once. These might have been obtained at the store adjoining
859 the school grounds. These instances are worth noting primarily because, although dried and tinned milks were obtainable, milk was seldom given to village children after weaning.

262 Many children were given a bit of cash each day, and
437 Janlekha (1955) commented that some children who did not have
855 any might barter an egg for snacks. One could tell fairly
261 well from the children's records what the venders offered for sale on a given day. Some influence of season was apparent; thus ices and syrup over shaved ice were eaten more often during the hot dry season, and cooked foods such as fried Chinese noodles appeared primarily in the cool season.

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126 1. With the cooperation of teachers of the third and fourth grades in the Bang Chan elementary school, records of food eaten during 24-hour periods were obtained from children in these grades at intervals of about one month during the school year. This was a regular activity in the health class. A total of 539 records (from 1 to 8 for each child) were obtained from 75 boys and 72 girls. To facilitate recording, each child was given a sheet of paper, with spaces for his name, the date, and kinds of food other than rice, eaten at the morning, noon and evening meals, and as snacks. These records were collected primarily for information on meal patterns of village families for comparison with the limited sample in the dietary survey, and on seasonal use of various foods.

000 concerning its culture and use. Tilapia culture was learned
[034] largely by trial and error, and was considered primarily as a
[228] source of extra cash. If it had been regarded also as a means of improving health through increasing the family's food supply, and if the homemaker had been shown how to use this unfamiliar fish in familiar ways, the outcome might have been
[262] different. Increased use of fermented fish and of small dried fish which are eaten whole, should be encouraged. So long as the ability of human beings to adapt to such low calcium intakes without harm has not been proved, any feasible means of increasing the calcium content of the diet seems worth trying.

262 More home consumption of eggs would be desirable, but
[432] their ready sale and acceptability for barter may present an
[431] obstacle to increased home use. Increased production would probably lead to some increased home use at least at the peak
[432] season. Duck eggs which are less often sold, might be stressed both for this reason, and because of their greater size. The idea held by some that eggs are not good for children nor for pregnant women should be countered when possible. Since hard cooked eggs have many ceremonial uses, they might be presented
[260] as "strengthening" food. Hard cooked eggs, which could be prepared the night before, would be convenient as breakfast for workers who would otherwise go to the field without food, for lunch to be carried to the field or to school, and for occasions when parents are to be away from home, as at a ceremonial, and should leave food at home for children.

272 Milk, as canned, dried or malted milk preparations, was
792 considered an appropriate gift for the priests, who are for-
788 bidden to eat solid food after the 11 a.m. meal. Some of this may be shared with the temple boys. The respected old ladies and others who stay overnight at the temple on the Buddhist holy day, and who observe the same rules as the priests for this time, also like to drink milk, often with coffee. Perhaps the wat committee could be taught how dried or canned milk should be reconstituted, and could direct that this be done. They could both spend some of the cash offerings for milk and encourage those who buy gifts of food for the priests to in-
000 clude milk among them. People gladly bought food for the
[329] priests and would probably accept on the authority of the head
[792] priest or respected elders, the idea of buying certain foods of high nutritive value, even though these cost more. If a small group of leaders, such as the wat committee or the hamlet headmen were instructed in the dangers of contaminated water and the values of good food, with the implication that the best available should be offered the priests both daily, and on ceremonial occasions, improved practices might spread to home consumption, since most food is prepared in the home.

[796] The importance of merit making and the relatively large
[982] cash expenditures involved in ceremonials, will probably influence acceptance of any improved practices which involve cash outlay. If some leaders were interested in dietary

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[375] Food for Homage-to-the-Teacher Rite (cont.)

Item	Amount	Cost in Baht
Fruit:		
Bananas ((3)kluaj (4)nam-(4)waa)	5 bun.	from father
Chico[2]		5.
Coconut	150	180.
Coconut (young, to make dessert)	30	30.
Job's tears	1 lit.	3.
Plums, yellow[2]		5.
Pomelos[2]		6.
Rose apples[2]		2.
Tamarind		7.50
Tomato sauce		8.
Young palm fruit[4]	7 bun.	3.
Vegetables (non leafy):		
Bamboo shoots, cooked	1 pail	28.
[272] Cucumber		--3
[273] Egg plants		--3
[274] Garlic	5 kg.	26.50
Gourd, white		1.
Onion, fragrant[5]		6.
Onion[5]	4 kg.	4.
Onion, welsh[5]		--3
Mushrooms		3.
Radish, white		--3
[354] **Vegetables (leafy green and yellow):**		
Cabbages		--3
Chinese kale		--3
Chili, green		7.50
Vegetables (leafy green & yellow) cont.:		
Lettuce		--3
Parsley		--3
Pumpkin	3 fruits	12.
Sweet basil leaves		1.
Sweet potatoes	6 kg.	6.
(3)Tang-(5)oo		--3
Seasonings etc.:		
Vinegar	1 bottle	1.
Fishsoy	1 jar	10.
(2)Ka-(1)chaaj	2½ kg.	12.50
Sodium glutamate		5.
Pepper		14.
Agar	400 gms.	36.
Miscellaneous:		
Cola beverage	72 bottles	72.
Liquor	16 bottles	80.[6]
Ice		30.
Cigarettes	2 pkgs.	--6
Tobacco	1 heap	--6
Betel pepper		9.
Fresh areca nut		10.
Dried areca nut		8.
Dried palm leaves	1 big bundle	2.
Firewood		50.
	Total	1577.75

[384]
1. For Moslem guests.
2. Food items placed on a tray and used in the ceremony proper.
3. Items so marked cost a total of 140 baht.
4. Not identified.
5. Several kinds of onions, both fresh and dried, are commonly used.
6. Prices not stated; estimate for liquor.

57 125

53. Which of the following six qualities do you feel is the best thing for man: Virile, friendly, educated, rich, religious, lazy? [577]

5.	To be virile	2
6.	To be friendly	31
7.	To be educated	56
8.	To be rich	43
9.	To be religious	126
X.	Not to be lazy	57
Y.	Unascertainable	15
—	No Answer	3

54. Do you drink too frequently, occasionally, seldom, or never? [272]

1.	Often	22
2.	Occasionally	68
3.	Seldom	158
4.	Never	85

55. Do you drink whiskey frequently, occasionally, seldom, or never? [273]

5.	Often	29
6.	Occasionally	73
7.	Seldom	157
8.	Never	74
9.	Unascertainable	—

56.a. In Thailand are many people who smoke opium. Excuse me, during your life have you ever smoked opium, or not? [276]

1.	Yes	45
2.	No	287
3.	Unascertainable	1

b. IF NO: Excuse me, do you think there is anything wrong with smoking opium, or not?

4.	Yes, it is wrong	281
5.	No, it is not wrong	5
6.	Unascertainable	1

c. IF SOMETHING WRONG: What are the various reasons why you think it is wrong?

7.	Bad for health	43
8.	Habit forming	42
9.	Waste of money	220
X.		
Y.	Other reasons, specify_____	40
0.	Unascertainable	

57.a. In the last month, how many times did you go to Nimburi or didn't you go at all? [484]

0.	Did not go at all	67
1.	Once	95
2.	2 to 4 times	120
3.	5 to 9 times	39
4.	10 to 19 times	30
5.	20 times or more	20
6.	Unascertainable	2

On the other hand, there are scores of items that have to be bought for daily consumption. These are: (a) Food -- fish, fish sauce, shrimp paste, meat, coconut, onions, garlic, dried chili, curry essence, limes, tamarind, palm sugar, white sugar, salt, and cookies: (b) Stimulant -- dried areca, betel, lime, tobacco, tobacco binder, and liquor; (c) Clothing; (d) Medicine; (e) Soap; (f) Fuel -- Kerosine, matches, charcoal, and fire wood. The list includes only standard items appearing on our check list. Actually, there are more of such items as coffee, tea, lemonade, coca-cola, and pepsi-cola. Articles that are bought but do not appear on the check list for ordinary household expenses for certain technical reasons which will be discussed in the section on consumption later in this chapter are building materials, machinery, farm equipment, furniture and household utensils.

The Operator's Remuneration and Measures of Success

From almost the beginning of the study of farm management in the United States, much effort has been given to measuring the success of farming businesses, or of farm-family undertakings or enterprises, and then of correlating various factors with these, such as size of business, yields per acre or per animal, or work-efficiency measured perhaps as crop acres per man or per horse or per tractor, with a view to discovering some general farm management principles or rules for a farmer or farm family to follow in becoming more successful. Black, Clawson, Sayre and Wilcox give the